A.I.A. File No. 16-F

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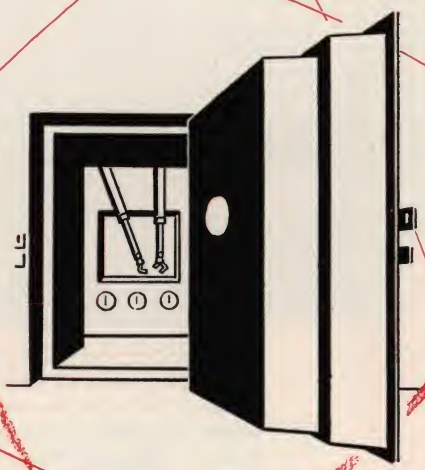
PEELLE DOORS

for Nuclear Applications



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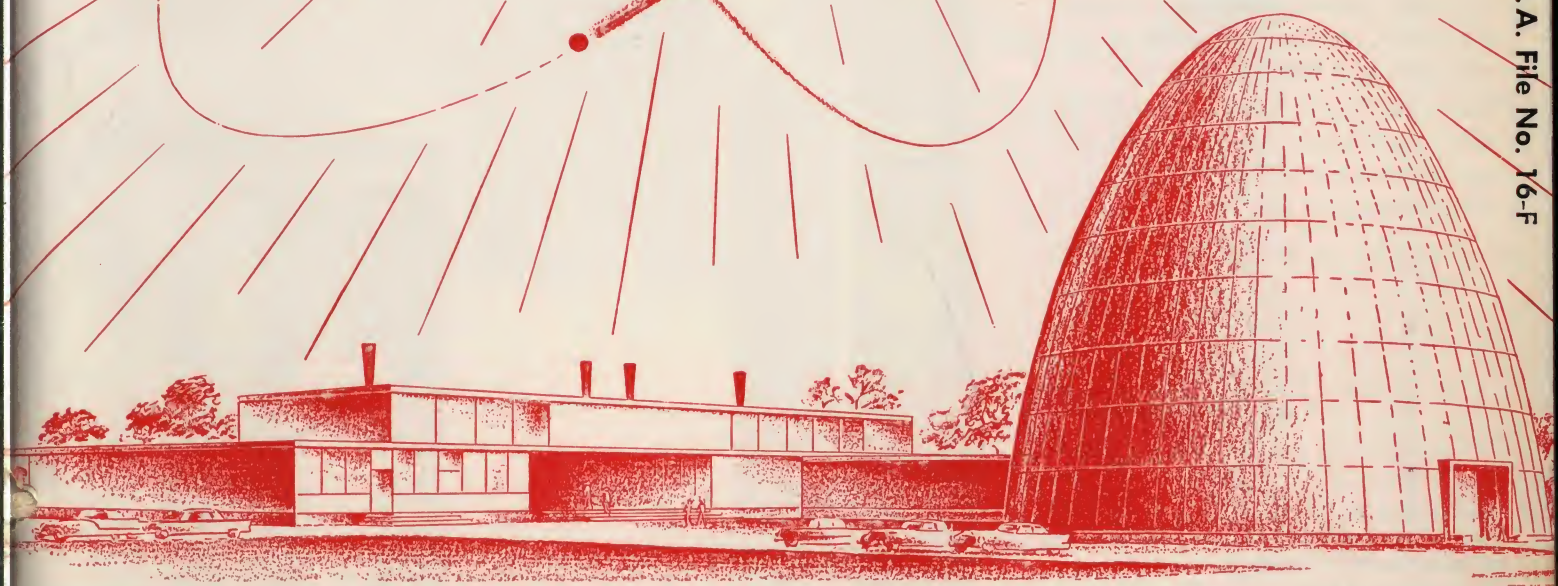


INDUSTRIAL REACTOR LABORATORIES, INC., PLAINSBORO, NEW JERSEY
ARCHITECTS: SKIDMORE, OWINGS & MERRILL • GENERAL CONTRACTOR: TURNER CONSTRUCTION CO.

THE PEELLE COMPANY, 47 Stewart Avenue, Brooklyn 37, N. Y.

What it Takes to Supply Doors for Nuclear Structures

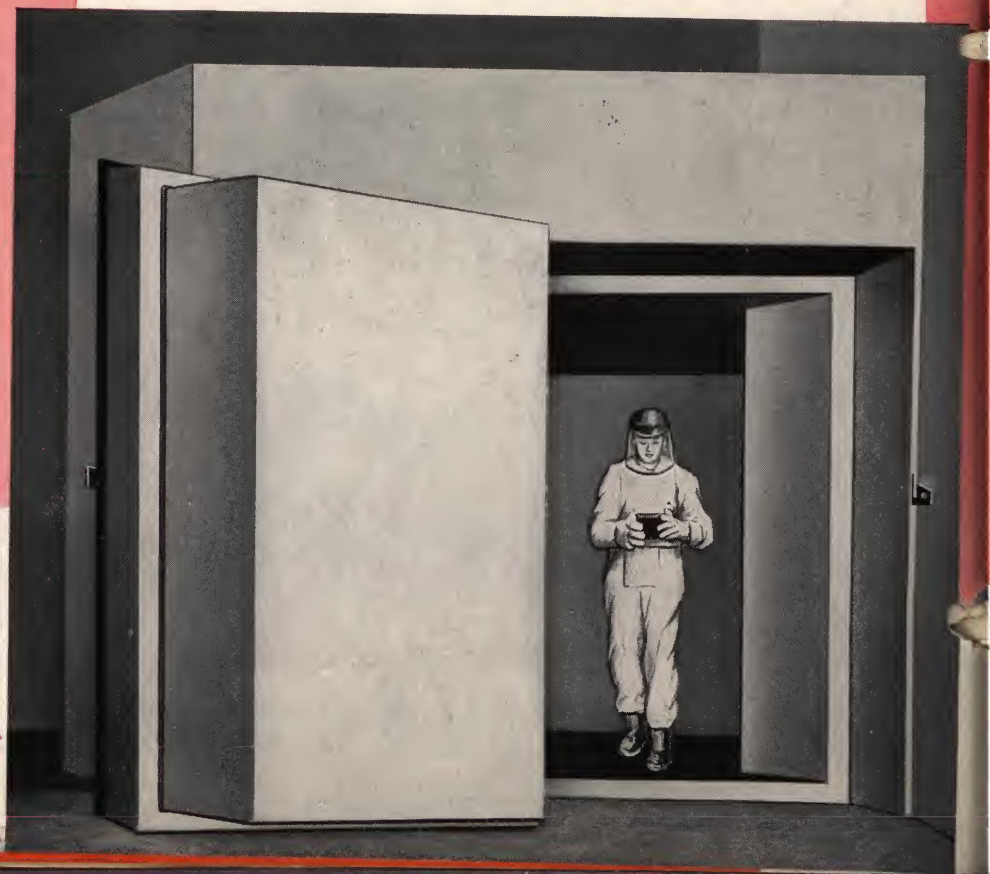
It's a far cry from the doors we encounter every day to those required for nuclear applications. The engineering and functional aspects of doors used in hot cells, reactors, irradiation chambers and other nuclear structures pose many unusual problems that most door fabricators never have to face.

Materials of great weight and density are used in nuclear shielding doors. Such doors may be made of lead, steel, concrete — sometimes heavy aggregate concrete — and often of a combination of these and other materials.

A great wealth of design and engineering experience, gained in furnishing doors for X-ray rooms, high frequency sound laboratories, for jet engine test cells and for some of the most prominent nuclear laboratories in the world places The Peelle Company in a strong position to engineer, fabricate and install the various types of doors required for nuclear facilities as indicated by the adjacent photos of doors installed in the Industrial Reactor Laboratories, Inc., at Plainsboro, N. J.

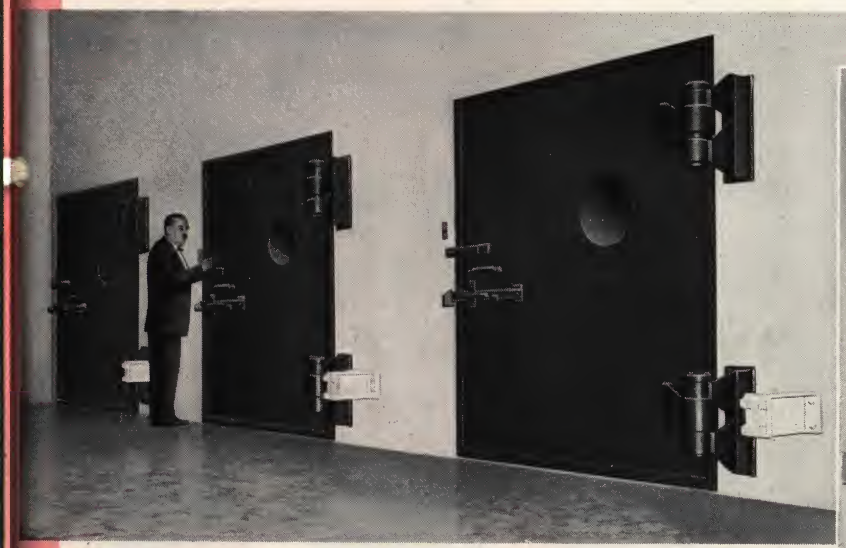
Your inquiries are invited.

TRUCK ENTRANCE DOOR. This manually operated door is mechanically sealed by an offset tracking system and positive dogging devices at the jambs. The door and seal were designed to withstand and prevent air leakage under positive pressures of .5psi. The door frame, tracking system and door panel were all constructed of structural steel members, rolled to varying radii to conform to the paraboloidal configuration of the building.



A DRY IRRADIATION CHAMBER SHIELDING DOOR shown in the fully opened position. This door is 2'6" thick weighing 20 tons and is a steel shell filled with concrete. For ease of operation the door is supported on massive precision hinges which permit 180° rotation of the door to provide maximum passageway. The same door is shown closed in the background of the upper photo.

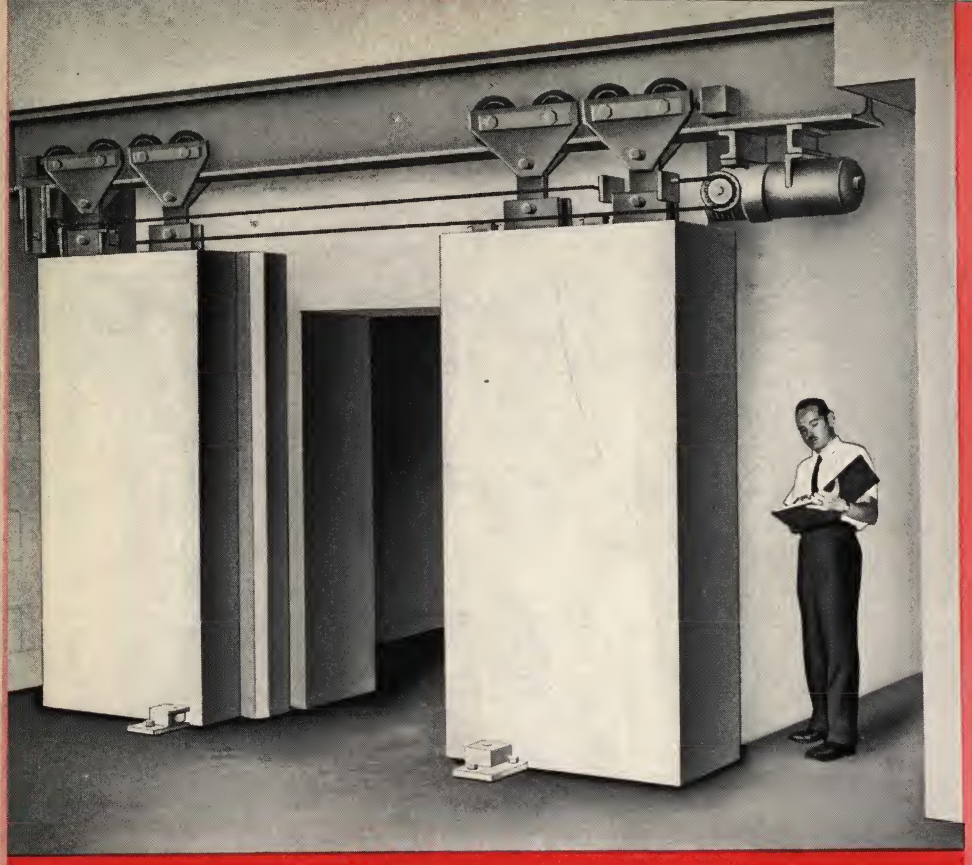
AIRLOCK DOORS. These doors permit frequent passage into and out of the reactor area, while the reactor is in operation. These insulated steel doors are equipped with inflatable gaskets to prevent the free flow of air around the door edges. Each airlock is equipped with two doors arranged with automatic electric interlocks to permit only one door to be opened at a time. Deflation or inflation of the gaskets and opening or closing of the doors are all accomplished automatically by pressure on the proper push button. While these doors were designed for a pressure of .5psi, Peelle has designed others for pressures up to 1psi, and can design doors for any specified pressure.

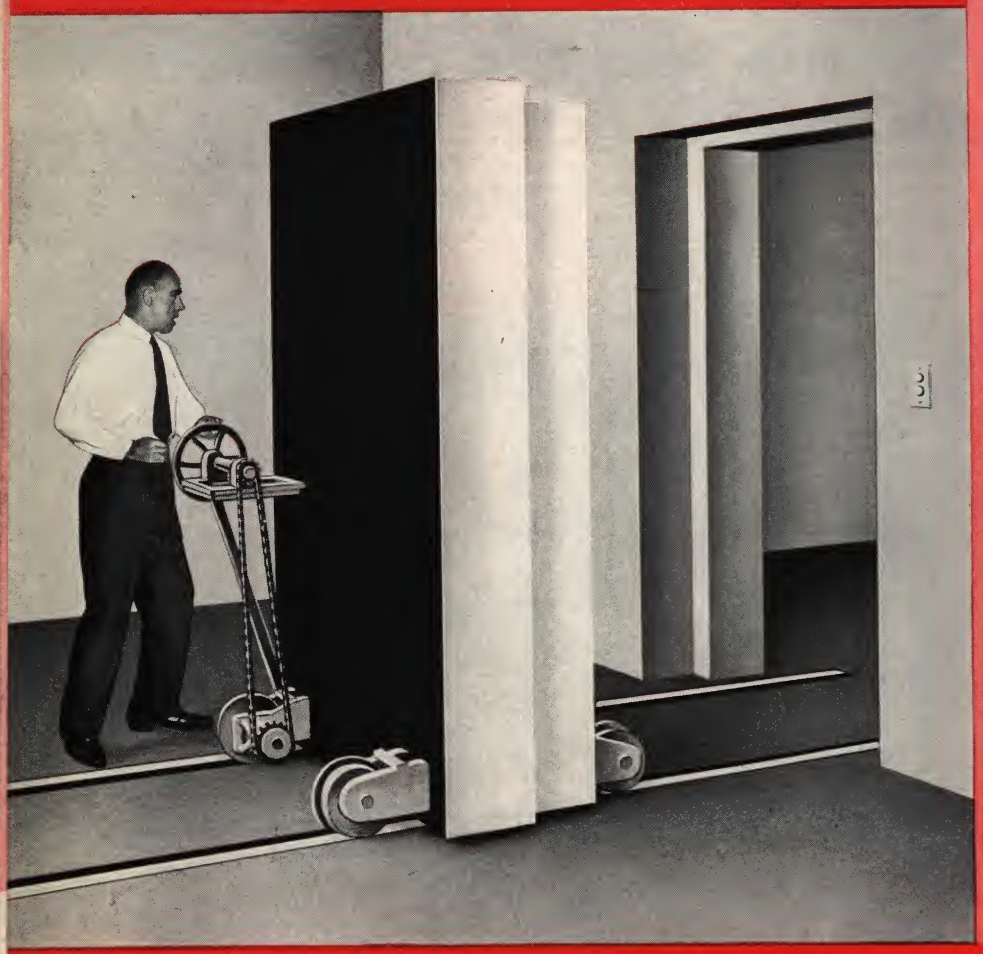


HOT CELL DOORS *(CLOSED)* The above photo shows a battery of hot cell doors, each of which is equipped with a transfer hole to permit placing small objects into the cell without opening the entire door. (See below for further details)

HOT CELL DOOR *(OPEN)*

Photo at right shows one of the above hot cell doors partially opened. The door weighs 26 tons and is a 3' thick steel shell filled with concrete hung on massive precision hinges of superior design.





HOT LAB DOOR in I. V. I. C. Reactor Building, Caracas, Venezuela. Frequency of operation made it necessary to motorize this center parting, horizontal sliding door. To provide extra hall space in front of the laboratory, the door panels were constructed of machined solid steel slabs 16" thick weighing 15 tons. The opening frame consists of heavy steel slabs to provide proper shielding and interlocking. The door panels are hung from precision tapered roller bearing trolleys rolling on an overhead I beam track thus leaving the floor free of tracks and guiding equipment. Single panel doors of this type can also be furnished.

ARCHITECTS-ENGINEERS:
SHAW, METZ & DOLIO.
CONSULTANTS:
GENERAL NUCLEAR ENGINEERS, INC.

●

SOME LOCATIONS OF PEELLE NUCLEAR DOOR INSTALLATIONS FOLLOW:

ARGONNE NATIONAL LABORATORY
Lemont, Illinois

INDUSTRIAL REACTOR LABORATORIES, INC.
Plainsboro, New Jersey

GENERAL ELECTRIC CO.,
Nuclear Experimental Area
Lockland, Ohio

N.A.C.A.
Sandusky, Ohio

I.V.I.C.
Caracas, Venezuela

●

PLUG TYPE DOOR at the General Electric Company Nuclear Experiment Station, Lockland Ohio. This Peelle door is a 2' thick steel reinforced concrete panel, bottom supported by a four-wheel built-in truck assembly riding on tracks set flush with the floor. The panel is easily operated by hand crank wheel. Motorization of this type door can be provided if required.

ENGINEERED FOR THE BUILDING INDUSTRY
PEELLE-RICHMOND PRODUCTS

THE PEELLE COMPANY
47 Stewart Avenue, Brooklyn 37, N. Y. • Telephone: EVergreen 6-7600
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